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<110> Cahoon, Rebecca E.
Falco, Saverio Carl
Pember, Stephen O.

<120> Chorismate Biosynthesis Enzymes

<130> BB-1159-A

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<213> Zea mays

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         35                  40                  45

Val Lys Ala Ser Gly Asn Val Phe Gly Asn Tyr Phe Gln Val Ala Thr
     50                  55                  60

Tyr Gly Glu Ser His Gly Gly Gly Val Gly Cys Val Ile Ser Gly Cys
 65                  70                  75                  80

Pro Pro Arg Ile Pro Leu Thr Glu Ala Asp Met Gln Val Glu Leu Asp
                 85                  90                  95

Arg Arg Arg Pro Gly Gln Ser Arg Ile Thr Thr Pro Arg Lys Glu Thr
            100                 105                 110

Asp Thr Cys Lys Ile Leu Ser Gly Thr His Asp Gly Met Thr Thr Gly
        115                 120                 125

Thr Pro Ile His Val Phe Val Pro Asn Thr Asp Gln Arg Gly Gly Asp
    130                 135                 140

Tyr Ser Glu Met Ser Lys Ala Tyr Arg Pro Ser His Ala Asp Ala Thr
145                 150                 155                 160

Tyr Asp Phe Lys Tyr Gly Val Arg Ala Val Gln Gly Gly Gly Arg Ser
                165                 170                 175

Ser Ala Arg Glu Thr Ile Gly Arg Val Ala Ala Gly Ala Leu Ala Lys
            180                 185                 190

Lys Ile Leu Lys Leu Lys Ser Gly Val Glu Ile Leu Ala Phe Val Ser
        195                 200                 205

Lys Val His Gln Val Val Leu Pro Glu Asp Ala Val Asp Tyr Glu Thr
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Val Thr Leu Glu His Ile Glu Ser Asn Ile Val Arg Cys Pro Asp Pro
225                 230                 235                 240

Glu Tyr Ala Glu Lys Met Ile Ala Ala Ile Asp Thr Val Arg Val Arg
                245                 250                 255

Gly Asp Ser Ile Gly Gly Val Val Thr Cys Ile Ala Arg Asn Val Pro
            260                 265                 270

Arg Gly Leu Gly Ser Pro Val Phe Asp Lys Leu Glu Ala Glu Leu Ala
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Lys Ala Met Leu Ser Leu Pro Ala Ser Lys Gly Phe Glu Ile Gly Ser
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Gly Phe Ala Gly Thr Asp Phe Thr Gly Ser Glu His Asn Asp Glu Phe
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Tyr Met Asp Glu Ala Gly Asn Val Arg Thr Arg Thr Asn Arg Ser Gly
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Gly Val Gln Gly Gly Ile Ser Asn Gly Glu Ile Ile Tyr Phe Lys Val
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Ala Phe Lys Pro Thr Ala Thr Ile Gly Lys Lys Gln Asn Thr Val Ser
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Arg Glu His Glu Asp Val Glu Leu Leu Ala Arg Gly Arg His Asp Pro
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Cys Val Val Pro Arg Ala Val Pro Met Val Glu Ser Met Ala Ala Leu
385                 390                 395                 400

Val Leu Met Asp Gln Leu Met Ala His Ile Ala Gln Cys Glu Met Phe
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             20                  25                  30

Lys Lys Gln Lys Thr Val Thr Arg Asp Lys Lys Glu Thr Glu Phe Ile
         35                  40                  45
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Ala Arg Gly Arg His Asp Pro Cys Val Val Pro Arg Ala Val Pro Met
     50                  55                  60

Val Glu Ala Met Val Ala Leu Val Leu Val Asp Gln Leu Met Ala Gln
 65                  70                  75                  80

Tyr Ala Gln Cys Asn Leu Phe Pro Val Asn Ser Asp Leu Gln Glu Pro
                 85                  90                  95

Leu Val Pro Ile Leu Arg Pro Glu Glu Ala Leu Leu
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<213> Triticum aestivum

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aactcttacc ctggatcaga tagagagcaa catttgtaga tgtcctgatc cagaatatgc  180
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aaatggtgaa actatatact tcaaagtagc tttcaagcca acagcaacta ttgggaagaa  540
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Pro Glu Asp Ala Val Asp Tyr Glu Thr Leu Thr Leu Asp Gln Ile Glu
         35                  40                  45

Ser Asn Ile Cys Arg Cys Pro Asp Pro Glu Tyr Ala Gln Lys Met Ile
     50                  55                  60

Asp Ala Ile Asp Lys Val Arg Val Asn Gly Asn Ser Ile Gly Gly Val
 65                  70                  75                  80

Val Thr Cys Ile Ala Arg Asn Val Pro Arg Gly Leu Gly Ser Pro Val
                 85                  90                  95

Phe Asp Lys Leu Glu Ala Leu Leu Ala Lys Ala Met Leu Ser Leu Pro
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            100                 105                 110

Ala Ser Lys Gly Phe Glu Ile Gly Ser Gly Phe Ala Gly Thr Asp Leu
        115                 120                 125

Thr Gly Ser Glu His Asn Asp Glu Phe Tyr Met Asp Glu Ala Gly Asn
    130                 135                 140

Val Arg Thr Arg Thr Asn Arg Ser Gly Gly Val Gln Gly Gly Ile Ser
145                 150                 155                 160

Asn Gly Glu Thr Ile Tyr Phe Lys Val Ala Phe Lys Pro Thr Ala Thr
                165                 170                 175

Ile Gly Lys Lys Gln Asn Thr Val Thr Arg Asp His Glu Asp Ile Glu
            180                 185                 190

Leu Leu Thr Arg Gly Arg His Asp Pro Cys Val Val Pro Arg Ala Val
        195                 200                 205

Pro Met Val Glu Thr Met Ala Ala Leu Val Leu Met Asp Gln Leu Met
    210                 215                 220

Ala His Val Ala Gln Cys Glu Met Phe Pro Leu Asn Leu Ala Leu Gln
225                 230                 235                 240

Glu Pro Ile Gly Ser Ala Asn Ser Thr Pro Ala Leu Ala Pro Asp Leu
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<213> Zea mays

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Ser Ser Leu Arg Phe Ala Val His Arg Cys Arg Thr Ala Arg Leu Glu
         35                  40                  45

Val Lys Ala Ser Gly Asn Thr Phe Gly Asn Tyr Phe Gln Val Ala Thr
     50                  55                  60

Tyr Gly Glu Ser His Gly Gly Gly Val Gly Cys Val Ile Ser Gly Cys
 65                  70                  75                  80

Pro Pro Arg Ile Pro Leu Thr Glu Ala Asp Leu Gln Val Glu Leu Asp
                 85                  90                  95

Arg Arg Arg Pro Gly Gln Ser Arg Ile Thr Ser Thr Arg Lys Glu Thr
            100                 105                 110

Asp Thr Cys Lys Ile Leu Ser Gly Thr His Glu Gly Val Thr Thr Gly
        115                 120                 125

Thr Pro Ile Leu Val Ile Val Pro Asn Thr Asp Gln Ile Gly Ser Asp
    130                 135                 140

His Arg Glu Ile Ala Asn Val Tyr Arg Pro Ser His Ala Asp Ala Thr
145                 150                 155                 160

Tyr Asp Phe Lys Tyr Gly Val Arg Ala Val Gln Gly Gly Gly Arg Ser
                165                 170                 175

Ser Gly Arg Lys Thr Val Gly Arg Val Ala Ala Gly Ala Leu Pro Lys
            180                 185                 190

Lys Ile Leu Lys Leu Lys Cys Gly Leu Glu Ile Leu Ser Phe Val Ser
        195                 200                 205

Lys Val His Gln Val Val Leu Pro Glu Asp Ala Val Asp Tyr Gly Ser
    210                 215                 220

Val Thr Leu Glu Gln Ile Glu Ser Asn Ile Val Arg Cys Pro Asp Pro
225                 230                 235                 240

Glu Tyr Ala Glu Lys Met Ile Asp Ala Ile Asp Arg Val Arg Val Arg
                245                 250                 255

Gly Asp Ser Val Gly Gly Val Ile Thr Cys Val Ala Arg Asn Val Pro
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            260                 265                 270

Arg Gly Leu Gly Ser Pro Val Phe Asp Lys Leu Glu Ser Glu Leu Ala
        275                 280                 285

Lys Ala Met Leu Ser Ile Pro Ala Ser Asn Gly Phe Glu Ile Gly Ser
    290                 295                 300

Gly Phe Ala Gly Thr Asp Leu Thr Gly Ser Glu His Asn Asp Glu Phe
305                 310                 315                 320

Tyr Met Asp Lys Ala Gly Ser Val Arg Thr Arg Thr Asn Arg Ser Gly
                325                 330                 335

Gly Val Gln Gly Gly Ile Ser Asn Val Glu Ile Val His Phe Lys Val
            340                 345                 350

Ala Phe Lys Pro Thr Pro Ser Ile Gly Val Lys Gln Asn Thr Val Ser
        355                 360                 365

Arg Glu Arg Gln Asn Val Glu Leu Leu Ala Arg Gly Arg His Asp Pro
    370                 375                 380

Cys Val Ala Pro Arg Ala Val Pro Val Val Glu Ser Met Ala Ala Leu
385                 390                 395                 400

Val Leu Met Asp Gln Leu Met Ala His Val Ala Gln Cys Glu Met Phe
                405                 410                 415

Ala Leu Asn Thr Ala Leu Gln Glu Pro Val Gly Ser Phe
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            20   25   30

Pro Met Val Glu Ser Met Ala Ala Leu Val Leu Met Asp Gln Leu Met
        35   40   45

Ala His Ile Ala Gln Cys Glu Met Phe Pro Leu Asn Leu Ala Leu Gln
    50   55   60

Glu Pro Val Gly Ser Ala Ser Ser Val Pro Ala Phe Ala Pro Asp Leu
65   70   75   80

Ser

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<213> Oryza sativa

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<213> Oryza sativa

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            20   25   30

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          35                  40                  45

Ala Ser Ala Asn Val Phe Gly Asn Tyr Phe Gln Val Ala Thr Tyr Gly
      50                  55                  60

Glu Ser His Gly Gly Gly Val Gly Cys Val Ile Ser Gly Cys Pro Pro
 65                  70                  75                  80

Arg Ile Pro Leu Thr Glu Ala Asp Met Gln Val Glu Leu Asp Arg Arg
                 85                  90                  95

Arg Pro Gly Gln Ser Arg Ile Thr Thr Pro Arg Lys Glu Thr Asp Thr
            100                 105                 110

Cys Lys Ile Leu Ser Gly Thr His Glu Gly Met Thr Thr Gly Thr Pro
        115                 120                 125

Ile His Val Phe Val Pro Asn Thr Asp Gln Arg Gly Gly Asp Tyr Ser
    130                 135                 140

Glu Met Ala Lys Ala Tyr Arg Pro Ser His Ala Asp Ala Thr Tyr Asp
145                 150                 155                 160

Phe Lys Tyr Gly Val Arg Ala Val Gln Gly Gly Gly Arg Ser Ser Ala
                165                 170                 175

Arg Glu Thr Ile Gly Arg Val Ala Ala Gly Ala Leu Ala Lys Lys Ile
            180                 185                 190

Leu Lys Leu Lys Ser Gly Val Glu Ile Leu Ala Phe Val Ser Lys Val
        195                 200                 205

His Gln Val Val Leu Pro Glu Asp Ala Val Asp Tyr Asp Thr Val Thr
    210                 215                 220

Met Glu Gln Ile Glu Ser Asn Ile Val Arg Cys Pro Asp Pro Glu Tyr
225                 230                 235                 240

Ala Gln Lys Met Ile Asp Ala Leu Asp Lys Val Arg Val Arg Gly Asp
                245                 250                 255

Ser Ile Gly Gly Val Val Thr Cys Ile Ala Arg Asn Val Pro Arg Gly
            260                 265                 270

Ile Gly Ser Pro Val Phe Asp Lys Leu Glu Ala Glu Leu Ala Lys Ala
        275                 280                 285

Met Leu Ser Leu Pro Ala Ser Lys Gly Phe Glu Ile Gly Ser Gly Phe
    290                 295                 300

Val Phe Thr
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Leu Arg Leu Ser Leu Arg Pro Arg Leu Pro Lys Arg Leu His Ile Gln
         35                  40                  45

Ala Ala Gly Ser Thr Tyr Gly Asn His Phe Arg Val Thr Thr Tyr Gly
     50                  55                  60

Glu Ser His Gly Gly Gly Val Gly Cys Val Ile Asp Gly Cys Pro Pro
 65                  70                  75                  80

Arg Leu Pro Leu Ser Glu Ala Asp Met Gln Val Asp Leu Asp Arg Arg
                 85                  90                  95

Arg Pro Gly Gln Ser Arg Ile Thr Thr Pro Arg Lys Glu Thr Asp Thr
            100                 105                 110

Cys Lys Ile Phe Ser Gly Val Ser Glu Gly Ile Thr Thr Gly Thr Pro
        115                 120                 125

Ile His Val Ser Val Pro Asn Thr Asp Gln Xaa Arg His Asp Tyr Ser
    130                 135                 140

Glu Met Ala Leu Leu Ile Gly Leu His Ala Asn Ala Thr Tyr Asp Met
145                 150                 155                 160

Lys Tyr Gly Xaa Arg Ser Val Lys
                165
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